

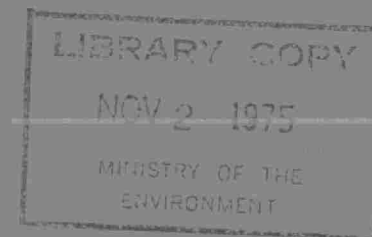
OPERATING SUMMARY

TOWN OF

SIMCOE

WATER POLLUTION CONTROL PLANT

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MINISTRY OF THE ENVIRONMENT



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SIMCOE
WATER POLLUTION CONTROL PLANT

operated for
THE TOWN OF SIMCOE

by the
MINISTRY OF THE ENVIRONMENT

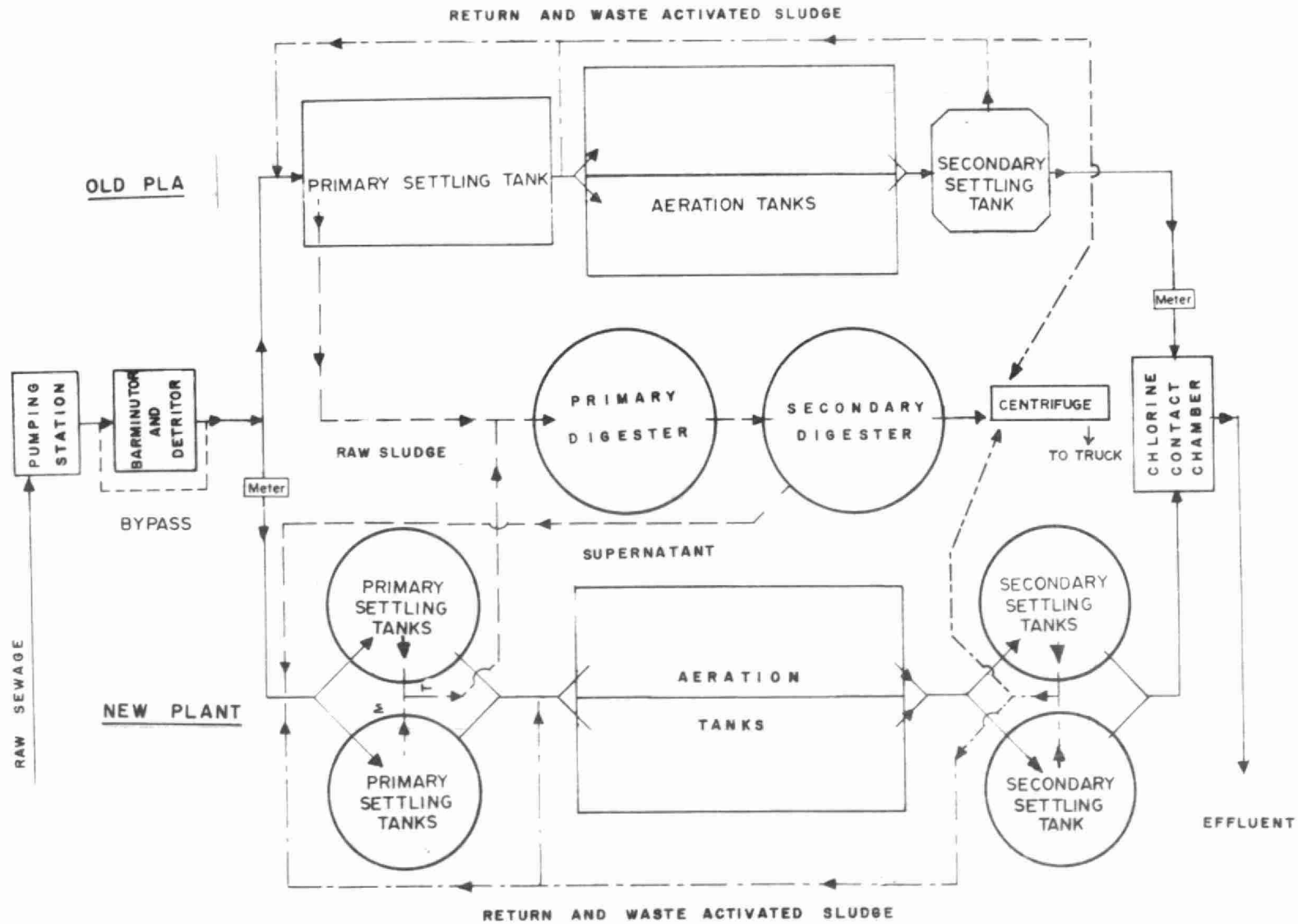
1974 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

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TOWN OF SIMCOE WPCP



DESIGN DATA

PROJECT Town of Simcoe WPCP

PROJECT NO. 2-0120-62

TREATMENT Activated Sludge

DESIGN FLOW 2.0 mgd

DESIGN POPULATION 15,400

BOD - Raw Sewage 220 mg/l
- Removal 90%

SS - Raw Sewage 230 mg/l
- Removal 90%

COMMON

RAW SEWAGE PUMPS

a) Type: Fairbanks-Morse
Size: One 1200 gpm @ 35' tdh

b) Type: Smart-Turner
Size: One 500 gpm @ 35' tdh

c) Type: Worthington
Size: Two 2000 gpm @ 50' tdh

PRETREATMENT (Common)

Grit Removal

Type: Dorr Detritor
Size: One 14' x 14' x 1½' (1,850 gal)
Retention: 1.33 min

Comminution

Type: Barminutor
Size: Model "C" (24")

PLANT #1 (0.6 mgd)

PRIMARY TREATMENT

Primary Sedimentation

Type: Hardinge
Size: One 50' x 20' x 8' (50,000 gal)
Retention: 4.31 hr
Loading: Surface, 600 gal/ft²/day
Weir, 30,000 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air, Four pass
Size: 8 - 12' x 50' x 8' (240,000 gal)
Retention: 9.6 hr

Diffusers

Type: Holes in pipe & spargers

Air Supply

Type: Roots-Connersville
Size: Two 1200 scfm

Secondary Sedimentation

Type: Dorr
Size: One 46' (hex) x 9 $\frac{1}{2}$ ' swd (98,600 gal)
Retention: 3.16 @ design flow with 25%
return sludge
Loading: Surface, 360 gal/ft²/day
Weir, 4150 gal/ft/day

CHLORINATION

Type: W & T
Size: One 400 lb/day

Chlorine Contact Chamber

Size: One 18' x 14 $\frac{1}{4}$ ' x 8' (6,800 gal)
Retention: 16.4 min

PLANT #2 (1.4 mgd)

PRIMARY TREATMENT

Primary Sedimentation

Type: Dorr
Size: Two 45' dia x 10' swd (198,000 gal)
Retention: 3.4 hr
Loading: Surface, 440 gal/ft²/day
Weir, 5570 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air; single-pass
Size: Two 98' x 25' x 12 $\frac{1}{2}$ ' (369,150 gal)
Retention: 6.3 hr

Diffusers

Type: Inka

Air Supply

Type: Dorr
Size: Two 5508 scfm

Secondary Sedimentation

Type: Dorr
Size: Two 45' dia x 10' swd (198,000 gal)
Retention: 3.4 hr
Loading: Surface, 440 gal/ft²/day
Weir, 5570 gal/ft/day

CHLORINATION

Chlorine Contact Chamber

Size: 15' x 20.6' x 8.2' (15,700 gal)
Retention: 16 min

OUTFALL (Common)

- to Lynn River

SLUDGE HANDLING (Common)

Digestion System - two-stage

Primary --

Type: PFT; gas mixed (Pearth floating
cover)
Size: One 50' dia x 20' swd (43,250
cu ft or 270,000 gal)
Loading: 2.86 lb/cu ft/mo

Secondary --

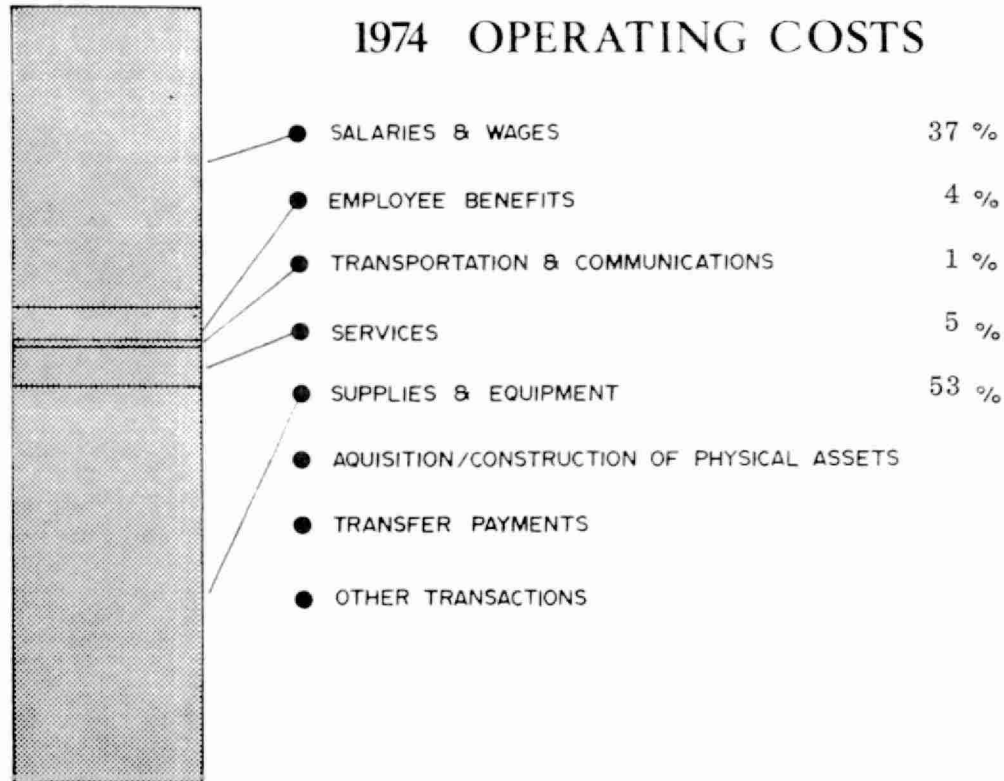
Type: PFT
Size: One 50' dia x 20' swd (43,250
cu ft or 270,000 gal)
Total Loading: 1.43 lb/cu ft/mo

Centrifuge

Type: One, KRUGER 500 KDF
Size: 40 HP Motor

ANNUAL COSTS

1974 OPERATING COSTS



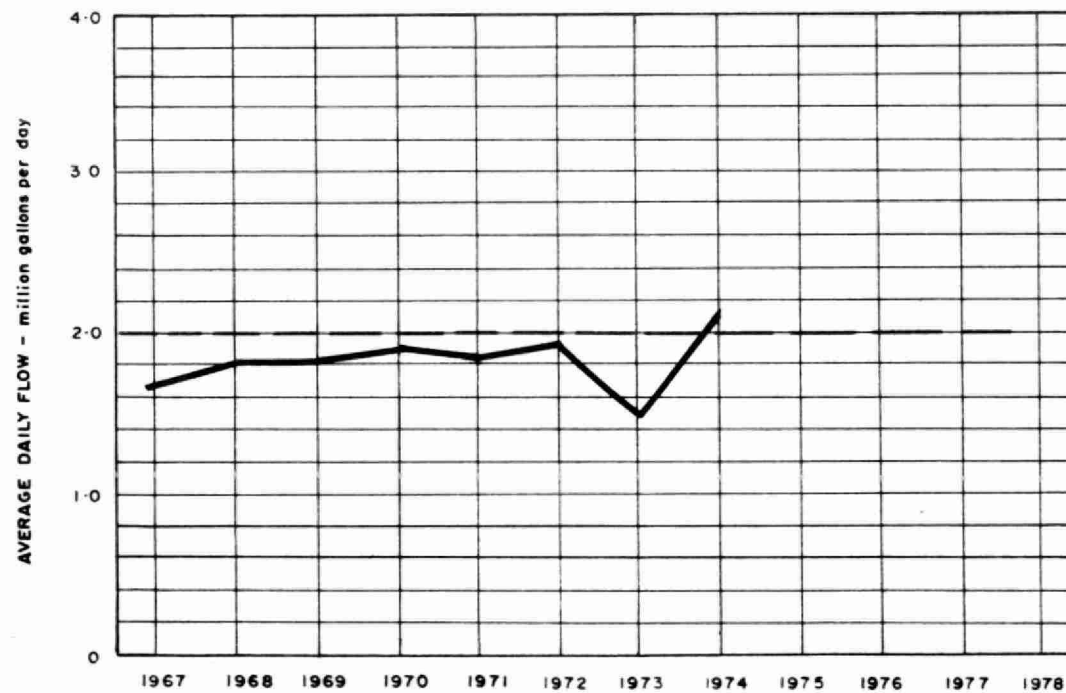
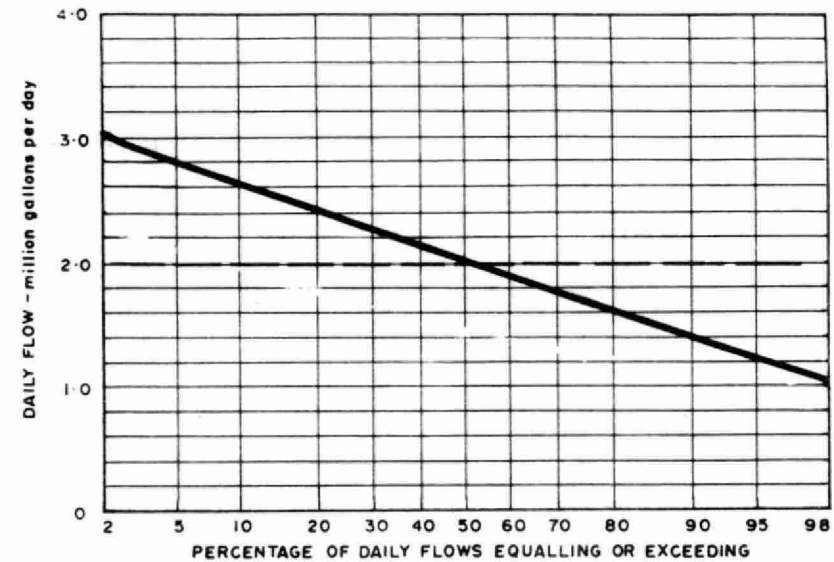
YEARLY OPERATING COSTS

YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G	¢/lb BOD
1969	627	50,723	81	3
1970	692	62,747	91	3
1971	660	93,586	142	6
1972	695	84,066	121	5
1973	556	90,947	163	6
1974	735	120,824	164	6

OPERATING EXPENDITURES

Regular Staff	\$ 42,736	\$
Casual (Unclassified) Staff	<u>1,952</u>	
TOTAL SALARIES AND WAGES		<u>44,688</u>
TOTAL EMPLOYEE BENEFITS		<u>4,977</u>
TOTAL TRANSPORTATION AND COMMUNICATIONS		<u>1,625</u>
Insurance	<u>1,815</u>	
Sludge Haulage	<u>420</u>	
Repairs and Maintenance	<u>3,844</u>	
Other Services	<u>507</u>	
TOTAL SERVICES		<u>6,586</u>
Machinery and Equipment	<u>6,936</u>	
Chemicals	<u>19,144</u>	
Utilities	<u>20,538</u>	
Other Supplies and Equipment	<u>16,330</u>	
TOTAL SUPPLIES AND EQUIPMENT		<u>62,948</u>
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		<u>-</u>
TOTAL TRANSFER PAYMENTS		<u>-</u>
OTHER TRANSACTIONS		<u>-</u>
GRAND TOTAL	GRAND TOTAL	\$ <u>120,824</u>

PROCESS DATA FLOWS



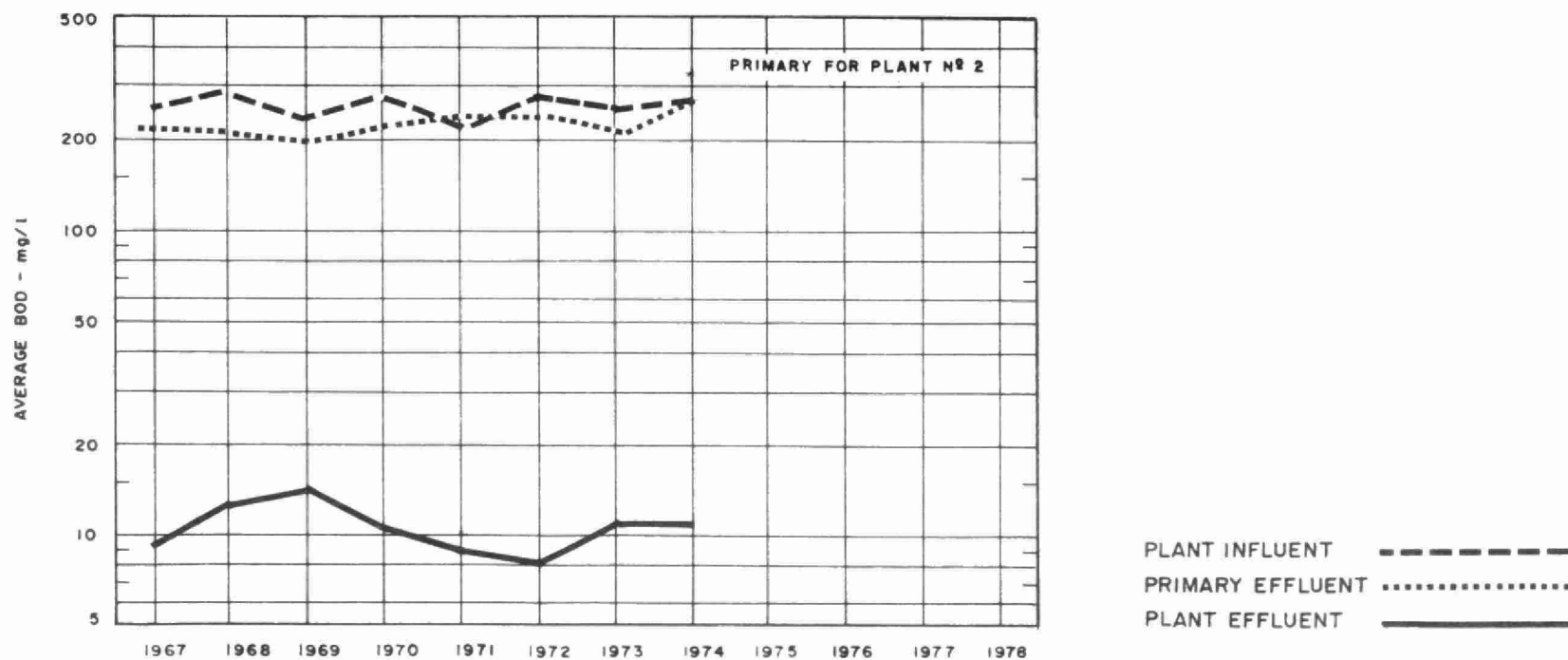
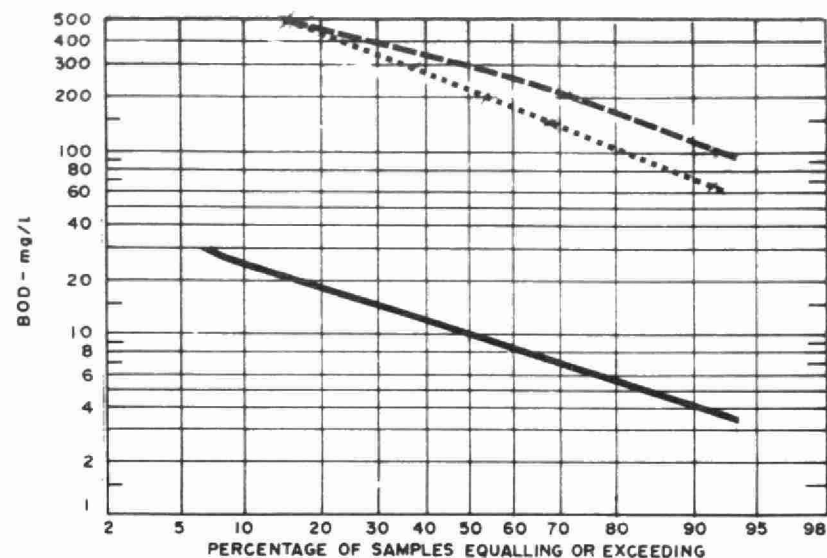
PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 ³ pounds			%	10 ³ pounds		
JAN	40.71	1.31	1.79	260	10	96	102	145	12	92	54	5.2	0.6
FEB	47.08	1.68	3.12	135	5	96	61	160	20	88	66	7.1	0.3
MAR	75.15	2.42	3.57	220	7	97	160	140	30	79	83	6.7	0.6
APR	71.38	2.38	2.94	260	13	95	176	200	15	92	132	11.5	1.7
MAY	74.68	2.41	3.30	550	15	97	399	290	10	97	209	7.6	0.6
JUNE	65.00	2.17	2.45										
JULY	60.13	1.94	2.43	150	22	85	77	120	38	68	49	5.5	1.4
AUG	59.25	1.91	2.50	600	8	99	351	420	10	98	243	11.0	0.6
SEPT	60.75	2.02	2.30	360	4	99	216	350	5	99	210	7.5	0.3
OCT	58.03	1.87	2.23	110	20	82	52	150	5	97	84	7.5	0.4
NOV	62.88	2.10	2.48										
DEC	60.06	1.94	2.30	200	9	96	115	200	20	90	108	5.8	0.8
TOTAL	735.10	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	61.26	2.01	MAXIMUM 3.57	269	12	96	157	206	18	91	115	7.4	0.8
No. of Samples	-	-	-	13	14	-	-	13	14	-	-	23	16

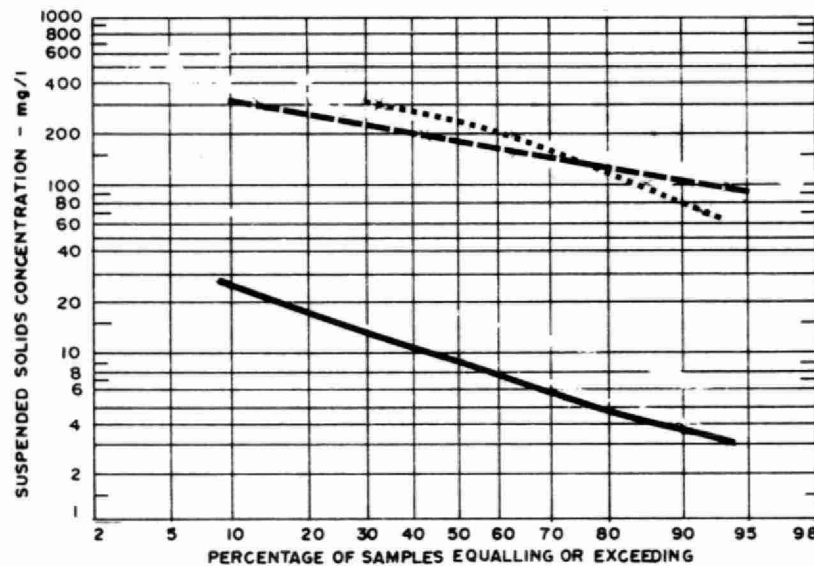
TREATMENT DATA

MONTH	NO.1 PLANT (old plant)								NO. 2 PLANT (new plant)							
	AVG DAILY FLOW mil gal	PRIM EFF		SEC EFF		AERATION			AVG DAILY FLOW mil gal	PRIM EFF		SEC EFF		AERATION		
		BOD mg/l	S S mg/l	BOD mg/l	S S mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000ft ² lb BOD		BOD mg/l	S S mg/l	BOD mg/l	S S mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000ft ² lb BOD
JAN	.43	180	105	11	13	3700	.09	2.4	0.88			10	12	3200		
FEB	.59	130	110	4	10	3600	.09	2.4	1.07	120	370	5	20	3900	.09	11.5
MAR	.48				11	3200			1.97	330	600	7	28	4600	.37	2.3
APR	.51	260	160	16	10	4200	.12	1.0	1.90	600	1200	10	20	7500	.39	1.3
MAY	.47								2.09	550	310	15	10	4000	.35	
JUNE	.51								1.69							
JULY	.40					3900			1.53	130	260	22	38	5100	.48	7.6
AUG	.46								1.45	320	250	8	10	3300	.36	3.2
SEPT	.52								1.57	300	360	4	5	3000	.42	3.1
OCT	.43								1.54	150	330	20	5	3600	.16	5.6
NOV	.51					2700			1.58					3800		
DEC	.35								1.56					3900		
TOTAL																
AVG.	.48	188	120	10	11	3500	.10	2.0	1.87	312	460	11	19	4200	.33	4.9

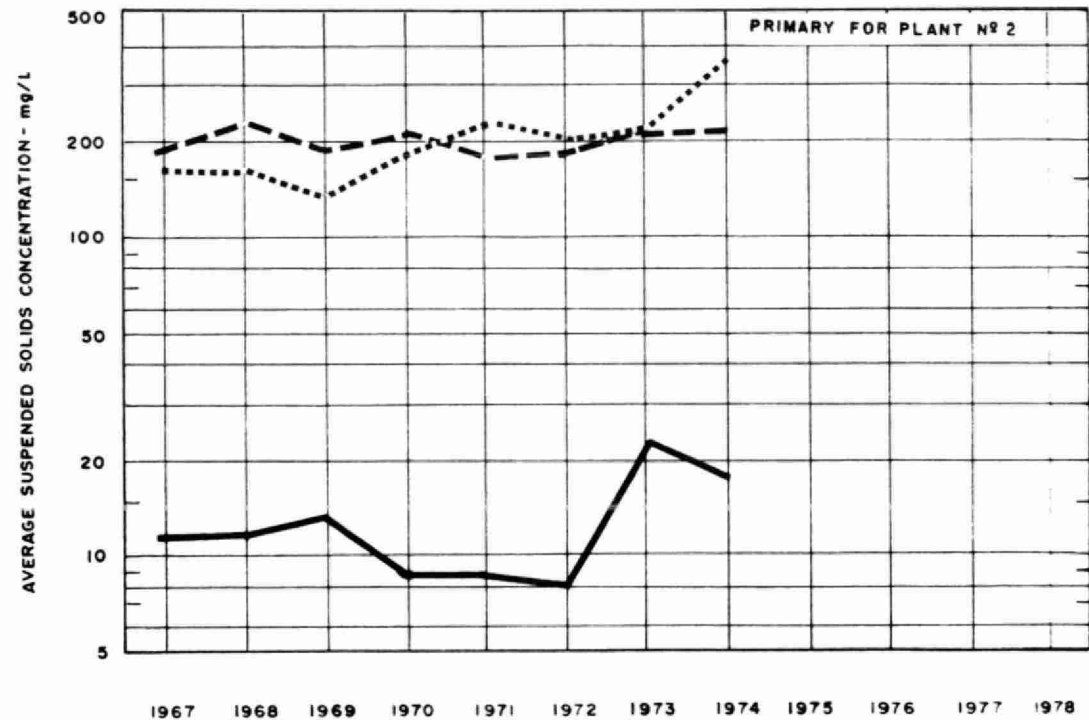
BIOCHEMICAL OXYGEN DEMAND



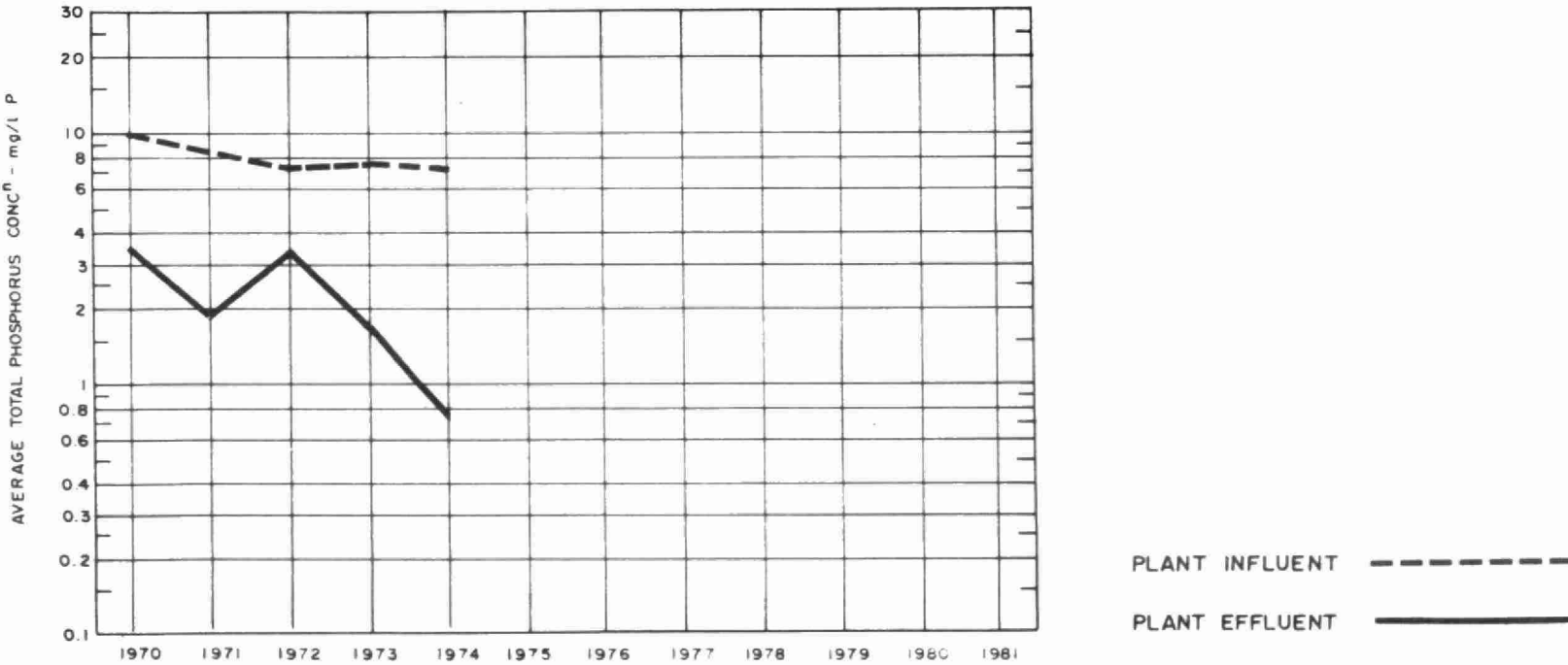
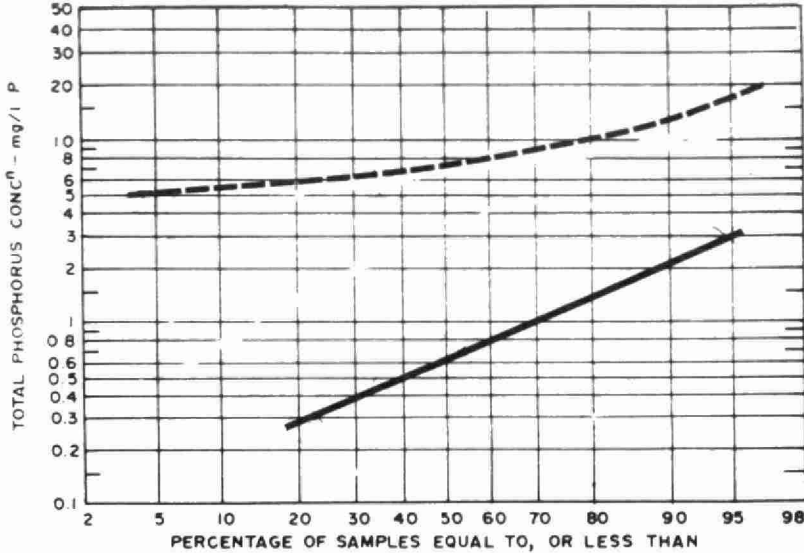
SUSPENDED SOLIDS



PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____

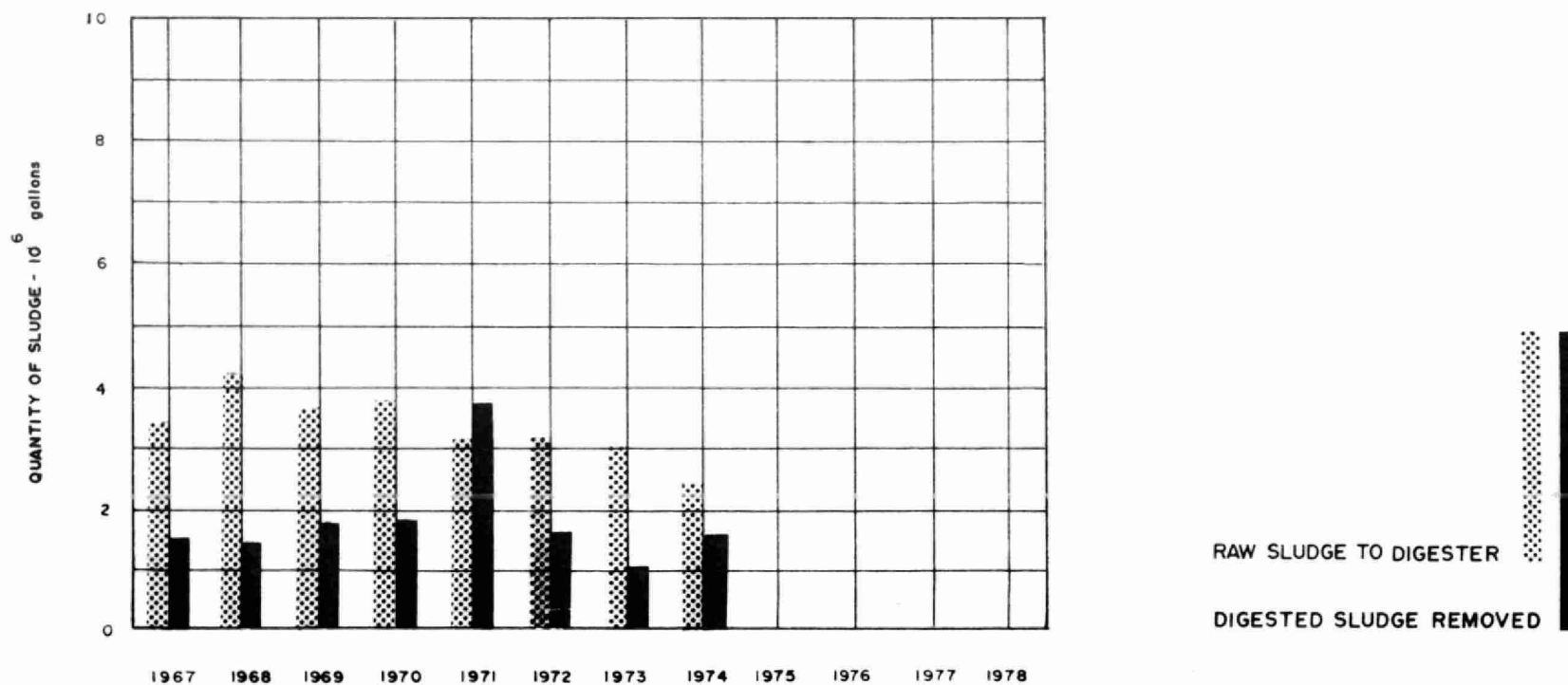
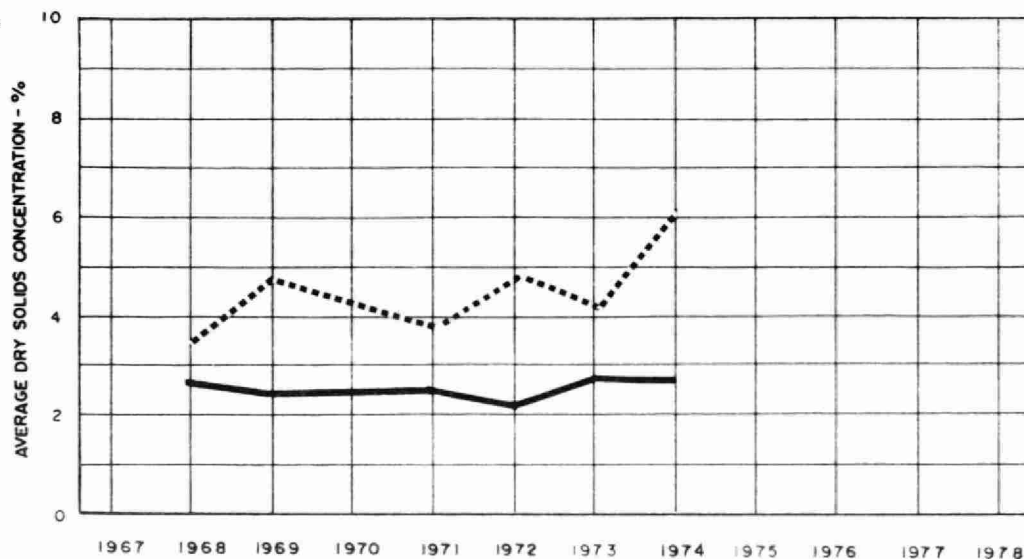


PHOSPHORUS



DIGESTION

RAW SLUDGE
DIGESTED SLUDGE —————



RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED —————

TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	
JAN	32	1.4	3.4	261	2.5	71	171	2.4	55		1013
FEB	33	2.3	4.9	240			29	2.5		3.5	172
MAR	35	2.1	2.8	204			148				68
APR	30	2.2	3.1	131			533				3163
MAY	33	2.2	2.9	141			123	17.9			732
JUNE	40	2.2	3.3	137			111	17.6			685
JULY	51	2.1	3.5	142			171	3.2			1013
AUG	40	1.9	3.2	208			188	15.5			1113
SEPT	62	1.9	3.1	183			51	5.8			134
OCT	36	1.9	3.3	213			106	3.6			449
NOV	38	1.8	2.9	242			32	3.5			
DEC	40	1.8	3.0	233			58	3.5			
TOTAL	470	23.8	—	2335	—	—	1721	—	—	—	8542
AVG.	.6 cubic feet/mil gal	2.0	3.2	195	2.5	71	143	6.3	55	3.5	854

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